

**REMARKS**

Claims 15 and 25-32 are amended. Claims 1-58 are pending in the application. Applicant recognizes that, of the pending claims, 1-13 and 35-58 stand withdrawn from consideration based on a provisional species election. Applicant hereby affirms such species election without traverse. Applicant further recognizes, in light of the Examiner's rejection of the claims 1-13 and 35-58, the consideration of such previously withdrawn claims by the Examiner. Accordingly, applicant herein addresses the Examiner's rejections, both of the previously withdrawn claims and of the claims drawn to the elected species, and requests reconsideration of the entire set of pending claims by the Examiner.

Claim 15 stands objected to under 35 C.F.R. §1.75(c) as being of improper dependent form for failing to further limit the subject matter of a previous claim. Without admission as to the propriety of the Examiner's objection, applicant has amended claim 15 to further limit the subject matter recited in claim 14. Accordingly, applicant respectfully requests withdrawal of objection to claim 15 in the Examiner's next action.

Claims 5, 14-34 and 48 stand rejected under 35 U.S.C. § 112, first paragraph, because the specification does not reasonably provide enablement for differentiating between different types of metal oxide of similar density. The applicant asserts that the §112, lack of enablement rejection is improper. As stated in MPEP § 2164.08, "all questions of enablement are evaluated against the *claimed* subject matter" (emphasis added). Claim 5 recites generating information about a type of particulates present in a fluid. Claims 14-34 recite generating information about one or more of the size, shape, type and quantity of undissolved material in a solution. Claim 48 recites obtaining data to distinguish a first type of impurity from a second type of impurity. Not one of claims 5, 14-34 or 48 recite the limitation of differentiating between metal oxides of similar density.

Even if the Examiner were correct in the assertion of lack of enablement for such limitation, enablement for such limitation is not necessary since the Examiner has impermissibly read such limitation into the rejected claims. Accordingly, applicant respectfully requests withdrawal of the § 112, lack of enablement rejection of claims 5, 14-34 and 48 in the Examiner's next action.

Claims 17-19 and 25-32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that the recited processing which calculates a concentration of undissolved material in a composition is unclear because the recited step is not disclosed in the specification. Applicant directs attention to the disclosure at page 18, line 12 through page 19, line 2, which specifically addresses determination of relative volumes of particles in a sample and determination of concentration. Accordingly, applicant respectfully requests withdrawal of the § 112, second paragraph, rejection of claims 17-19 in the Examiner's next action.

With respect to claims 25-32, the Examiner expresses a lack of certainty as to whether the recited limitations for the solution actually relate to the reagent or to the composition. The Examiner further states that the role of the metals recited in such claims is unclear and that silver (as recited in claim 31) is not disclosed in the specification. Without admission as to the propriety of the Examiner's rejection, applicant has amended claims 25-32 to overcome such rejection. With respect to claim 25, applicant has amended such to recite a solution comprising one or more of aluminum, copper, lead, antimony and silicon, where the one or more of aluminum, copper, lead, antimony and silicon are derived from the composition. The amendment to claim 25 is supported by the specification at, for example, page 6, line 25 through page 7 line 3; and at page 7, line 20 through page 8, line

6. Claims 26-32 have been amended similar to the amendment to claim 25. As amended, claims 25-32 clearly set forth that the various recited combinations of aluminum, copper, lead, antimony, silicon and silver are derived from the composition. Further, applicant directs attention to the specification at page 7, line 21, which clearly discloses that a metal which is to be analyzed can comprise silver. For these reasons, claims 25-32 are not indefinite. Accordingly, applicant respectfully requests withdrawal of the § 112 rejection of claims 25-32 in the Examiner's next action.

Claims 1-16, 21-28, 33-36, 38-40, 42, 43 and 45-49 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Pavate et al., U.S. Patent No. 6,001,227. A proper § 102 anticipation rejection requires that each and every element of the rejected claim be disclosed in a prior art reference (MPEP § 2131). Claims 1-16, 21-28, 33-36, 38-40, 42, 43, and 45-49 are allowable over Pavate for at least the reason that Pavate fails to disclose each and every limitation in any of those claims.

Independent claims 1, 14, 40 and 45 each recite filtering through a substrate and scanning across at least a portion of the substrate with a microscope utilizing automated displacement of the substrate relative to an observing portion of the microscope. Each of claims 1, 14, 40 and 45 further recite digital image processing of data obtained by the microscope. Pavate discloses dissolving samples in an aqueous acid solution, collecting solids onto a filter, washing and drying the filters and determining inclusion size distribution using manual light microscopy techniques. Pavate does not disclose the recited obtaining data utilizing automated displacement scanning of a substrate and digital image processing of the data obtained. Independent claims 1, 14, 40 and 45 are therefore not anticipated by Pavate and are allowable over this reference.

Independent claim 35 recites collecting undissolved components on a filter surface and scanning across at least a portion of the filter surface with a microscope, the scanning comprising automated displacement of the filter surface relative to a portion of the microscope. Claim 35 further recites digital image processing of data obtained by the microscope. Independent claim 35 is allowable over Pavate for reasons similar to those discussed above with respect to independent claims 1, 14, 40 and 45.

Dependent claims 2-15, 21-28, 33-34, 36, 38-39, 42, 43 and 46-49 are allowable over Pavate for at least the reason that they depend from the corresponding allowable base claim 1, 14, 35, 40 or 45.

Claims 1-8, 14-16, 22, 34, 35 and 37 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Nakanouchi et al., U.S. Patent No. 4,584,078. As discussed above, independent claims 1, 14 and 35 each recites filtering and obtaining data by scanning at least a portion of a substrate or a filter utilizing automated displacement, and digital image processing of data obtained by a microscope. Nakanouchi discloses separation of particles from a substrate using ultrasonic radiation, drying the separated particles, and observing the particles under an electron microscope (col 4, lns 36-41). Nakanouchi does not disclose or suggest the recited filtering, or the recited scanning at least a portion of a substrate or a filter, utilizing automated displacement relative to a portion of a microscope. Independent claims 1, 14 and 35 are therefore not anticipated by Nakanouchi and are allowable over this reference.

Dependent claims 2-8, 15-16, 22, 34 and 37 are allowable for at least the reason that they depend from the corresponding allowable base claim 1, 14, or 35.

Claims 29-32, 44 and 50-58 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavate. As discussed above, independent claims 14 and 40 are not

anticipated by Pavate. Furthermore, Pavate does not suggest the claim 14 and claim 40 recited scanning across at least a portion of a substrate utilizing automated displacement of the substrate relative to an observing portion of a microscope, or the recited digital image processing of data obtained by the microscope. Independent claims 1 and 40 are therefore not rendered obvious by Pavate and are allowable over this reference. Independent claim 50 also recites automated displacement scanning of a substrate relative to a portion of a microscope, and digitally analyzing data obtained by the microscope. Independent claim 50 is therefore allowable over Pavate for reasons similar to those discussed with respect to independent claims 1 and 14. Dependent claims 29-34, 44 and 51-58 are allowable over Pavate for at least the reason that they depend from corresponding allowable base claim 14, 40 or 50.

Claims 17-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavate in view of King, U.S. Patent No. 4,697,080. As discussed above, Pavate does not disclose or suggest the claim 14 recited filtering through a substrate and scanning across at least a portion of the substrate with the microscope utilizing automated displacement of the substrate relative to a portion of the microscope. King discloses exposing samples to an electron beam in an analytical electron microscope and measuring electron dose to determine relative concentration of components (col 2, ln 58 through col 3, ln 29). King does not disclose or suggest the recited filtering or the recited scanning across at least a portion of a substrate after filtering. As combined, Pavate and King fail to disclose or suggest the recited filtering through a substrate and scanning across at least a portion of the substrate with a microscope, utilizing automated displacement of the substrate relative to a portion of the microscope. Independent claim 14 is therefore allowable over Pavate in

view of King. Dependent claims 17-19 are allowable over the combination of Pavate and King for at least the reason that they depend from allowable base claim 14.

Claims 37 and 41 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Pavate in view of Kitamura, U.S. Patent No. 5,477,049. As discussed above, independent claims 35 and 40 are not anticipated by Pavate. Furthermore, Pavate does not suggest the claim 35 and 40 recited filtering through a substrate or a filter, and scanning across at least a portion of the substrate or the filter with a microscope utilizing automated displacement of the substrate or the filter relative to a portion of the microscope. Independent claims 35 and 40 are therefore not rendered obvious by Pavate. Kitamura discloses scanning across a surface of a sample to detect particles (col 1, Ins 37-58). Kitamura does not disclose or suggest the recited filtering through a substrate or through a filter, and scanning across at least a portion of the substrate or filter with a microscope. As combined, Pavate and Kitamura fail to disclose or suggest the recited filtering and scanning across at least a portion of the substrate or filter with a microscope. Independent claims 35 and 40 are therefore allowable over Pavate in view of Kitamura. Dependent claims 37 and 41 are allowable over the combination of Pavate and Kitamura for at least the reason that they depend from corresponding allowable base claim 35 or 40.

For the reasons discussed above, claims 1-58 are allowable. Accordingly, applicant respectfully requests formal allowance of claims 1-58 in the Examiner's next action.

The abstract stands objected to due to a length in excess of 150 words. Applicant has amended the abstract to fewer than 150 words. Accordingly, applicant respectfully requests withdrawal of the objection of the abstract in the Examiner's next action.

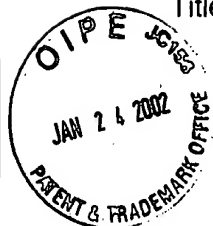
Respectfully submitted,

Appl. No. 09/595,583

Dated: Dec 21, 2001 By:

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Application Serial No. .... 09/595,583  
Filing Date ..... June 15, 2000  
Inventor ..... Mize, J.  
Assignee ..... Honeywell International, Inc.  
Group Art Unit ..... 1743  
Examiner ..... Gakh, Y.  
Attorney's Docket No. .... 30-5074(4015)  
Title: Methods of Generating Information About Materials Present in Compositions and  
About Particulates Present in Fluids



**MARKED UP VERSION OF AMENDMENTS ACCOMPANYING RESPONSE TO**

**OCTOBER 23, 2001 OFFICE ACTION**

**In the Specification**

The replacement specification paragraphs incorporate the following amendments.

Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

The Abstract has been amended as follows:

**ABSTRACT OF THE DISCLOSURE**

The invention encompasses a method of generating information about materials present in a composition. A reagent is utilized to selectively dissolve portions of the composition ~~relative to other portions of the composition~~, and thereafter is filtered through a substrate. ~~After the filtering, the substrate~~ which is then scanned with a microscope. ~~The scanning comprises~~ using automated displacement of the substrate ~~relative to an observing portion of the microscope along a grid pattern. The microscope obtains to obtain~~ data about the non-dissolved portions at locations along ~~the~~ a grid pattern. ~~The data is processed to generate information~~ Information about the size and quantity of the non-dissolved portions of the composition is generated. The invention also encompasses a method of generating information about impurities present in a metal composition. A



~~reagent is utilized to selectively dissolve metallic~~ Metallic portions of the composition are selectively dissolved relative to at least some impurities present in the metal composition, and to thus form a solution. ~~The impurities comprise at least two different types, with one of the at least two types being a first type and the another of the at least two types being a second type.~~ The solution is filtered through a substrate. ~~After the filtering, the substrate is~~ which is then scanned with a microscope. ~~The microscope obtains~~ to obtain data about the impurities ~~which includes a relative darkness of the impurities relative to a background defined by the substrate. The first type of impurities are darker than the background, and the second type of impurities are lighter than the background.~~ The data is processed to generate information about the size, quantity and type of the impurities.

### In the Claims

The claims have been amended as follows. Underlines indicate insertions and ~~strikeouts~~ indicate deletions.

15. (Amended) The method of claim 14 wherein the generated information is information about one or more both of the size, type, and quantity ~~and shape~~ of the undissolved material.

25. (Amended) The method of claim 14 wherein the solution comprises one or more of aluminum, copper, lead, antimony and silicon, the one or more of aluminum, copper, lead, antimony and silicon being derived from the composition.

26. (Amended) The method of claim 14 wherein the solution comprises one or more metals derived from the composition, the only metals in the solution being selected from the group consisting of one or more of aluminum, copper, lead, and antimony.

27. (Amended) The method of claim 14 wherein the solution comprises aluminum derived from the composition.

28. (Amended) The method of claim 14 wherein the solution comprises aluminum and copper, the aluminum and copper being derived from the composition.

29. (Amended) The method of claim 14 wherein the only metals in the solution are selected from the group consisting of one or both of aluminum and copper, the aluminum and copper being derived from the composition.

30. (Amended) The method of claim 14 wherein the solution comprises copper derived from the composition.

31. (Amended) The method of claim 14 wherein the solution comprises copper and silver, the copper and silver being derived from the composition.

32. (Amended) The method of claim 14 wherein the solution comprises lead derived from the composition.

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